

# RECENT DATA ON SUMMER BIRDS OF THE CHIRICAHUA MOUNTAINS AREA, SOUTHEASTERN ARIZONA

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**ABSTRACT.** Over four breeding seasons 167 species of birds were recorded from the Chiricahua Mountains and adjacent areas; 19 of these were winter residents or migrants not seen after May. The status of several species apparently has changed since the study of Tanner and Hardy (1958). The Golden Eagle (*Aquila chrysaetos*) and Prairie Falcon (*Falco mexicanus*) appear to have decreased, whereas the Harlequin Quail (*Cyrtonyx montezumae*) and several of the hummingbirds apparently are more common than previously. Several cavity-nesting species appear to have increased in numbers and the Eastern Bluebird (*Sialia sialis*) has become established as a breeding species since 1960. Black Swifts (*Cypseloides niger*), a species for which there is no specimen for Arizona, were seen on one occasion, and a female Lucifer Hummingbird (*Calothorax lucifer*), another unexpected species, was seen on several occasions.

**RESUMEN.** Se observaron 167 especies de aves en las Montañas Chiricahua y zonas adyacentes, durante las cuatro estaciones de cría; 19 de estas especies eran residentes invernales o aves migratorias que no aparecían después de Mayo. El estado de varias especies ha cambiado aparentemente desde los estudios realizados por Tanner y Hardy (1958). El Aguila Real (*Aquila chrysaetos*) y el Halcón Café (*Falco mexicanus*) han disminuido, mientras que la Codorniz dedilarga (*Cyrtonyx montezuma*) y varios colibrís son probablemente más abundantes ahora que antes. Varias especies de las que anidan en cavidades han incrementando en número, así, el Azul de tempestad (*Sialia sialis*) aparece bien establecido, de modo que cría en esta zona desde 1960. El Vencejo negro (*Cypseloides niger*) no se ha registrado en Arizona, y solamente se ha visto en una ocasión en esta región, así como una hembra del Colibrí Chupamirto morada grande (*Calothorax lucifer*) otra de las especies raras en esta zona, en donde solo ha sido observado en pocas ocasiones.

The Chiricahua Mountains of Cochise County, Arizona, are located near the Arizona-New Mexico boundary about 20 miles north of the Mexican border. These mountains, along with the Huachuca and Santa Rita mountains, are of special ornithological interest because the northernmost extension of several essentially Mexican species and the southern limit of several boreal forms occur here. This, together with the wide variety of habitats found in the Chiricahuas, ranging from desert scrub to spruce-fir forest, combine to make this region rich in breeding bird species. In recent years the Chiricahuas have become relatively well known to ornithologists, largely because the Southwestern Research Station of the American Museum of Natural History is located in Cave Creek Canyon.

The avifauna of the Chiricahua Mountains has been popularized by a number of ornithologists (Peterson, 1948; Brandt, 1951), but little detailed work has been published. Tanner and Hardy (1958) briefly describe the elevational distribution of some of the more common birds and review the avifaunal studies of the region, pointing out the sparseness of data dealing with breeding birds of the area.

No comprehensive study of plant distribution in the Chiricahuas has been published, but Balda (1967) describes in detail the habitats he studied, and Whittaker and Niering (1965) present an excellent discussion of plant distribution in the nearby and similar Santa Catalina mountains.

We spent a great deal of time in riparian communities, habitats not described by Tanner and Hardy (1958). These are affected by lower temperatures (due to nightly cold air drainage) and higher moisture conditions than the adjacent typical plant communities of a given elevation. Riparian habitat is best developed in canyon bottoms but

is present to some degree wherever permanent or temporary streams are found. Plant species diversity is great in these areas and is reflected in high bird species diversity. Lower elevation riparian woods are characterized by sycamore, willow, cottonwood, maple, walnut, ash, and several species of oaks. The Station is located in such an area. In more restricted canyon bottoms, such as the South Fork of Cave Creek Canyon, many coniferous species typically found at higher elevations are intermingled with the deciduous trees. In the Chiricahua Mountains, Arizona cypress is limited to this community.

Because the avifauna of the Chiricahuas has special interest, we feel that updating the avifaunal list of Tanner and Hardy (1958) is worthwhile, even though an excellent state bird book (Phillips *et al.*, 1964) has recently been published. Our data indicate that dramatic changes in the status of some birds have occurred since Tanner and Hardy's study. Perhaps the best example is the arrival and population increase of the Eastern Bluebird (*Sialia sialis*). In addition, some common species, principally nocturnal ones, were overlooked.

Ligon camped in Cave Creek Canyon from 17 May to 21 July 1964; Balda was at the Southwestern Research Station from 3 June to 2 July of that year. From 17 February to 18 August 1965 Balda conducted a study of the breeding habitats of the birds of the region. Ligon arrived at the Station on 4 May and remained until 5 August. In 1966 Ligon spent three days in Cave Creek Canyon in April and 18 days there in July. He was at the Station for several days during May 1967.

We follow the terminology of Tanner and Hardy (1958) in referring to the status of each species. Species recorded by them for which we have no additional comments are simply listed with a one-word designation of status. More detailed information on abundance is currently being prepared. Those species not recorded by the above authors are indicated by an asterisk; species for which either nests were found or juveniles seen are indicated by a dagger. All specimens were taken by Ligon and are deposited in the collections of The University of Michigan Museum of Zoology. Only species recorded after 1 May are included in this account.

The village of Portal is located below the mouth of Cave Creek Canyon at an elevation of 4770 feet. Paradise is about five miles northwest of Portal. Apache is 12 miles south of Rodeo, New Mexico on U.S. Highway 80. Stewart Forest Camp and Sunny Flats Campground are located in Coronado National Forest between Portal and the Station (elevation 5400 feet); Rustler Park, also in Coronado National Forest, is higher (8400 feet).

#### SYSTEMATIC LIST

*Oxyura jamaicensis*, Ruddy Duck\*.—A male in breeding plumage was seen on 21 July 1965, in a cattle tank at the foot of the mountains near Portal.

*Cathartes aura*, Turkey Vulture.—Common. Large flock of about 50 roosted nightly on huge rock above Stewart Forest Camp.

*Accipiter gentilis*, Goshawk†.—An adult female was collected 5 July 1964, nine miles southwest of Apache. A nest with one flying young was located in the same area the following day at an elevation of about 5200 feet. This nest was about 200 yards downstream from an occupied nest of *A. cooperii*. Goshawks were seen on four occasions over ponderosa pine forest below Rustler Park.

*Accipiter striatus*, Sharp-shinned Hawk\*.—One observed at the station for several days in early May 1965; captured hummingbirds with apparent ease from the station feeders.

*Accipiter cooperii*, Cooper's Hawk†.—Common in Cave Creek Canyon from oak woodland to spruce-fir forest in 1964 and 1965; seven nests found, four examined, each with four or five eggs or young.

*Buteo jamaicensis*, Red-tailed Hawk.—Uncommon.

*Buteo swainsoni*, Swainson's Hawk†.—One seen building a nest 20 May 1964. Nest with two well-grown living young, and a third dead, found 2 July 1964, near Portal.

*Buteo albontatus*, Zone-tailed Hawk\*.—One seen by Ligon perched on rocks in dry South Fork of Cave Creek on 21 May 1964. Two seen by Balda along the South Fork of Cave Creek Canyon in May 1965.

*Buteo lagopus*, Rough-legged Hawk\*. — Winter visitor; last seen on 5 May.

*Aquila chrysaetos*, Golden Eagle. — Pair seen regularly east of Portal in 1964 and 1965. Not seen in the mountains.

*Circus cyaneus*, Marsh Hawk\*. — One was seen occasionally over the grasslands below Rodeo from March through May 1965.

*Falco mexicanus*, Prairie Falcon. — Seen irregularly over grassland south of Rodeo and also on west side of the mountains in 1965.

*Falco peregrinus*, Peregrine Falcon\*. — Seen regularly in 1964 and 1965 along high cliffs above Stewart Forest Camp and Sunny Flats Campground. Believed to have nested. Ligon observed one drive a Red-tailed Hawk to earth near Sunny Flats Campground.

*Falco sparverius*, Sparrow Hawk†. — Uncommon. In 1964 a pair nested in a large dead cottonwood one and one-half miles east of Portal. A nest was located near Paradise in 1965. Seen occasionally in ponderosa pine forest.

*Callipepla squamata*, Scaled Quail†. — Common in grasslands containing a scattering of shrubs along Highway 80 east of the Chiricahuas. Young seen on 8 July 1965. Newly-hatched young captured and photographed on 11 July 1965. A very late nest located on 17 August contained 12 eggs.

*Lophortyx gambelii*, Gambel's Quail†. — Common in desert scrub surrounding the mountains. Newly-hatched young captured and photographed 9 June 1964.

*Cyrtonyx montezumae*, Harlequin Quail\*†. — Not uncommon but not regularly seen in oak woodland and pine-oak-juniper woodland communities. Four young seen by Balda on 20 July 1965.

*Meleagris gallopavo*, Turkey†. — Uncommon. Nest, eight eggs located near the Station on 17 May 1965. Seven chicks seen 13 June 1964. Flocks of 8 to 10 birds were seen often in the ponderosa pines below Rustler Park in 1965.

*Ochotona vociferus*, Killdeer. — Seen irregularly about water tanks.

*Actitis macularia*, Spotted Sandpiper\*. — Five seen on small ponds at the foot of the mountains on 21 July 1965.

*Columba fasciata*, Band-tailed Pigeon. — Regular in flocks in Cave Creek Canyon in early summer, becoming common to abundant at high elevations in mid-July, when pairs were apparently preparing to nest.

*Zenaida asiatica*, White-winged Dove†. — Commonly seen from desert scrub up into oak woodland.

*Zenaidura macroura*, Mourning Dove†. — This species was most common in desert scrub where Balda located 23 nests in 1965. At one nest the young fledged on 4 March. One pair was seen on repeated occasions in ponderosa pine forest.

*Columbigallina passerina*, Ground Dove\*. — One seen by Ligon on 9 June 1964, one and one-half miles east of Portal near a watering tank. Phillips *et al.* (1964: 43) consider the records for the east side of the Chiricahuas as representing strays rather than a breeding population.

*Geococcyx californianus*, Roadrunner. — Uncommon below Portal.

*Otus asio*, Screech Owl\*†. — Common in Cave Creek Canyon, where nests were found in 1965 and 1967.

*Otus trichopsis*, Whiskered Owl\*†. — Common in Cave Creek Canyon. One or more nests were located near the station in 1964, 1965, 1967.

*Otus flammeolus*, Flammulated Owl†. — Uncommon. Two nests were located in 1965, each with one young. One nest also contained an addled egg.

*Bubo virginianus*, Great-horned Owl\*. — Uncommon from desert scrub up to the lower edges of ponderosa pine forest.

*Glaucidium gnoma*, Pygmy Owl\*†. — Uncommon. Nest found near the Station on 17 May 1967, in cavity used by Elf Owls the previous two years. Seen and heard occasionally above Rustler Park.

*Micrathene whitneyi*, Elf Owl\*†. — Abundant in Cave Creek Canyon where 20 nests were located by Ligon in 1965.

*Speotyto cunicularia*, Burrowing Owl\*†. — Rare on foothill grasslands surrounding the mountains. One pair nested three miles south of Apache in 1965.

*Strix occidentalis*, Spotted Owl. — Uncommon. Heard calling in Cave Creek Canyon on 11 July 1964 by Ligon, J. P. Hubbard, and B. K. Harris. One seen at Rustler Park by Balda, 14 August 1965.

*Caprimulgus vociferus*, Whip-poor-will†. — Common along Cave Creek Canyon floor up to the highest elevations of the mountains. Female with egg ready for laying collected 31 May, 1964.

*Phalaenoptilus nuttallii*, Poor-will. — Common from desert scrub through oak woodland especially on the drier slopes. Heard primarily at dusk and dawn. Seen foraging about lights at the Station on several occasions.

*Chordeiles minor*, Common Nighthawk\*. — Seen 18 July, 1965, southwest of Apache.

*Chordeiles acutipennis*, Lesser Nighthawk.—Common on desert scrub surrounding mountain and occasional through oak woodland.

*Cypseloides niger*, Black Swift\*.—Rare. Flock of about a dozen seen above Herb Martyr Dam on 11 July 1964, by Ligon, J. P. Hubbard, and B. K. Harris. They were foraging with Purple Martins, Violet-green Swallows and White-throated Swifts. There is no satisfactory specimen record for Arizona (Phillips *et al.*, 1964: 58).

*Aeronautes saxatalis*, White-throated Swift.—Common in the mountains. Also foraged over the desert.

*Calothorax lucifer*, Lucifer Hummingbird\*.—Extremely rare. A female was first seen by Balda on 17 June 1965 southwest of Apache in oak woodland adjacent to xeric slopes covered with manzanita and agave. This female was seen again on 26 June and 1 July, and was positively identified at a local rancher's hummingbird feeder. There are only two very old specimen records for the state (Phillips, *et al.*, 1964: 62).

*Archibolobus alexandri*, Black-chinned Hummingbird†.—Uncommon in desert, but very common in oak woodland, riparian canyons and oak-juniper woodland. Occasionally sighted in lower ponderosa pine forest. Fourteen nests were located by Balda in 1965, with extreme dates 15 April to 28 June.

*Seiophanes platerensis*, Broad-tailed Hummingbird†.—Uncommon in oak woodland and oak-juniper woodland but common in riparian canyon and coniferous forests. An exceptionally early nest found in South Fork on 4 April contained two eggs. Both young fledged by 13 May. The latest nest was located in ponderosa pine forest and contained two young on 1 August.

*Seiophanes rufus*, Rufous Hummingbird.—Regular from woodlands through coniferous forest from mid-July onward. Seen occasionally in desert as well.

*Stellula calliope*, Calliope Hummingbird\*.—Male shot but not retrieved by Ligon in Rustler Park on 16 July 1964. One seen on 2 August 1965 in ponderosa pine forest.

*Eugenes fulgens*, Rivoli's Hummingbird.—Regular at station feeders but uncommon in woodland and riparian canyons. Seen occasionally at lower edge of ponderosa pine forest.

*Lampornis clemenciae*, Blue-throated Hummingbird†.—Uncommon in riparian habitats but regular at the station feeders. Two nests each containing two eggs were located on 28 June 1965, in the South Fork of Cave Creek Canyon. This species is very aggressive and was seen driving other species from feeding sites and destroying nests of other hummingbirds to obtain nesting materials.

*Amazilia verticalis*, Violet-crowned Hummingbird\*.—First seen at Station in June in 1963, 1964, and 1965. R. W. Lasiewski captured one in July 1965.

*Trogon elegans*, Coppery-tailed Trogon†.—Nest found near Sunny Flats Campground on 10 June 1964; the two young fledged on 15 July. This species was seen in 1964, 1965, and 1966. In 1965 it was common in the South Fork of Cave Creek Canyon, where on 23 May Balda observed three males and two females in close proximity. Males wandered great distances up and down Cave Creek Canyon.

*Colaptes cafer*, Red-shafted Flicker†.—Common in woodland and coniferous forest. Eight nests were found; extremes are 2 May to 24 June.

*Melanerpes formicivorus*, Acorn Woodpecker†.—Common to abundant resident of Cave Creek Canyon. Numerous nests were found.

*Dendrocopos villosus*, Hairy Woodpecker†.—Abundant in coniferous forest. Young left nest below Flys Peak on 24 June. Two nests were located near the Station, one in a walnut, the other in a sycamore, well below the usual altitudinal breeding range of this species.

*Dendrocopos scalaris*, Ladder-backed Woodpecker†.—Uncommon in desert scrub lowlands surrounding mountains. Seen foraging as high as 5200 feet on xeric slopes. Two nests, each in agave, were located on 25 May 1964. Both contained three young.

*Dendrocopos arizonae*, Arizona Woodpecker†.—Common in oak and pine-oak woodland, but often silent and difficult to locate. Nests were found in sycamore, cottonwood, and walnut trees.

*Tyrannus verticalis*, Western Kingbird†.—Common in desert but rare in higher woodlands. Three of four nests in desert scrub were located on the high flower stalk of a yucca. The earliest nests located were being built on 23 May 1965.

*Tyrannus vociferans*, Cassin's Kingbird†.—Uncommon in woodlands up to 7000 feet. Two nests were located in oaks, another in a sycamore.

*Myiodynastes luteiventris*, Sulfur-bellied Flycatcher†.—Common in the lower portion of Cave Creek Canyon, less so near the Station. Four nests, all in sycamore cavities, were located between Stewart Forest Camp and Sunny Flats campgrounds in 1964. In 1966, the first egg was laid in a nest near the Station on 25 July.

*Myiarchus tyrannulus*, Wied's Crested Flycatcher\*†.—Uncommon in Cave Creek Canyon. Nest containing well-grown young located high in a cavity in a sycamore on 7 July 1966.

*Myiarchus cinerascens*, Ash-throated Flycatcher†.—Common in all wooded habitats from desert through pine-oak woodlands. Highest density found in the latter. Five nests found in cavities or dead oak stumps. Earliest nest was being constructed on 9 May 1965.



*Myiarchus tuberculifer*, Olivaceous Flycatcher. — Common in canyons.

*Sayornis nigricans*, Black Phoebe†. — Uncommon. In 1964 and 1965 occupied nests were located under the bridge at Stewart Forest Camp. In 1965 a nest was also located under the bridge near the Station and on the eave of a station building (four eggs on 8 May).

*Sayornis saya*, Say's Phoebe†. — Uncommon at lower elevations but common near buildings and other man-made objects. Nested at Station each year, 1964-67.

*Empidonax difficilis*, Western Flycatcher†. — Common in ponderosa pine forest; abundant in spruce-Douglas fir forests on the peaks. Four nests were located in 1965. One nest with three eggs was located on 1 June in an upturned root system of a large pine. The other nests were located in cavities or attached to the side of rough-barked trees.

*Empidonax fulvifrons*, Buff-breasted Flycatcher\*. — One or two pairs spent the summer of 1965 in the oak-juniper woodland behind the Station. First seen on 8 May.

*Contopus pertinax*, Coue's Flycatcher†. — Common in ponderosa pine forest where one nest was located in 1964 and two in 1965. The earliest nest was being built 20 May. Two stub-tailed young were taken on 28 June 1964.

*Contopus sordidulus*, Western Wood Pewee†. — Abundant.

*Nuttallornis borealis*, Olive-sided Flycatcher\*. — One migrant seen on 30 May 1965, in ponderosa pine forest.

*Pyrocephalus rubinus*, Vermilion Flycatcher†. — Rare at lower elevations except near irrigated areas or human habitation. Male collected at Cave Creek Cabins near Portal on 28 June 1964. Male seen as high as the Station on three different occasions.

*Camptostoma imberbe*, Beardless Flycatcher\*. — Rare on the dry slopes and open canyon floors of Cave Creek. Six sight records by Balda from March through July 1965, from below Stewart Forest Camp up to South Fork.

*Eremophila alpestris*, Horned Lark†. — Common in all grasslands.

*Tachycineta thalassina*, Violet-green Swallow. — Common at all elevations in the mountains.

*Hirundo rustica*, Barn Swallow\*†. — Rarely seen foraging over desert scrub to woodlands. One nest with three young found in rancher's barn 12 miles south of Apache.

*Progne subis*, Purple Martin. — Uncommon.

*Cyanocitta stelleri*, Steller's Jay. — Common in higher riparian and coniferous forest.

*Apelocoma coerulescens*, Scrub Jay\*. — Seen rarely in thick foliage at low elevations. One seen one and one-half miles east of Portal on 20 June 1964; another seen 13 May 1967 near Cave Creek Cabins, between Portal and the entrance to Coronado National Forest. Three to five seen 10 July 1964, nine miles southwest of Apache, at the edge of oak woodland.

*Apelocoma ultramarina*, Arizona Jay. — Common. Stub-tailed young seen 28 May 1964; one taken on 3 July 1964. Three nests found in May 1965, all with four eggs.

*Corvus corax*, Raven. — Rare at high altitudes. Seen frequently along the highway 15 miles north of Douglas, Arizona.

*Corvus cryptoleucus*, White-necked Raven†. — Uncommon on the desert. One nest containing two young was located in a clump of yucca west of the mountains in 1965.

*Parus sclateri*, Mexican Chickadee†. — Common but secretive during nesting in the ponderosa pine forest. Nest located in gambel's oak cavity on 10 June 1964.

*Parus inornatus*, Plain Titmouse\*†. — Uncommon in and around Cave Creek Canyon, but fairly common in oak woodlands in more xeric areas. One nest was located behind the Station in a cavity of a dead juniper on 12 June 1965. Young left this nest on 19 June.

*Parus uollueberi*, Bridled Titmouse†. — Common in oak woodland, pine-oak-juniper woodland and riparian. It overlapped with the Plain Titmouse in the first two communities. Five nests were found in natural cavities of oaks and sycamore. The earliest nest located had three eggs on 1 May while the latest nest had seven young on 6 June.

*Auriparus flaviceps*, Verdin†. — Uncommon on the desert. Four nests were found in 1965 and one in 1964. A male was observed building a nest, which was never completed, on 31 March. A nest with four eggs was found on 24 May 1964; another, containing one egg was located on 2 June 1965. Immatures were observed building roost nests on three occasions.

*Psaltiparus minimus*, Bushtit†. — Common in oak-juniper and riparian woodlands, uncommon in open oak woodland. Three nests were found in 1965; the earliest was under construction on 4 April. Young left this nest about 7 May. The latest nest was found 29 May; the young fledged on 19 June.

*Sitta carolinensis*, White-breasted Nuthatch†. — Most common in ponderosa pine forest. Breeds sparsely in riparian habitat, oak-juniper woodland, and spruce-Douglas fir forest. One nest found with young on 17 June in a natural cavity in silver-leaf oak.

*Sitta canadensis*, Red-breasted Nuthatch<sup>†</sup>.—Common only in spruce-Douglas fir forest where one nest was observed being built on 24 May 1965.

*Sitta pygmaea*, Pygmy Nuthatch<sup>†</sup>.—Abundant in all coniferous forest from 5,000 feet to top of mountain. Nine nests found in 1965. First young left the nest on 14 June.

*Certhia familiaris*, Brown Creeper.—Abundant in spruce-Douglas fir and common wherever conifers are present. Immatures move downward in late June. An immature female was collected at Sunny Flats Campground on 30 June 1964.

*Troglodytes aedon*, House Wren<sup>†</sup>.—Common in coniferous forests, where four nests were located in 1965. All contained young by the last week of June.

*Thryomanes bewickii*, Bewick's Wren<sup>†</sup>.—Abundant in oak woodland, common in oak-juniper woodland. Five nests located in natural cavities of Emory Oak. The earliest nest was under incubation on 19 May, while the latest was being built on 5 June.

*Campylorhynchus brunneicapillum*, Cactus Wren<sup>†</sup>.—Common on desert scrub surrounding the mountain. Eighteen nests found in 1965; dates ranged from 24 March to 21 July.

*Catherpes mexicanus*, Cañon Wren.—Uncommon.

*Salpinctes obsoletus*, Rock Wren.—Rare.

*Mimus polyglottos*, Mockingbird.—Uncommon in desert but common in open oak-woodland.

*Dumetella carolinensis*, Catbird\*.—Migrant, seen by Balda on 9 May 1965.

*Toxostoma bendirei*, Bendire's Thrasher.—Rare in desert scrub.

*Toxostoma curvirostre*, Curved-billed Thrasher\*<sup>†</sup>.—Uncommon in desert. Nesting range overlaps with Bendire's Thrasher at the foot of the mountain. Five nests found, four of which were slung between two yuccas. The earliest nest had three eggs on 4 May, the latest had three eggs on 28 May.

*Toxostoma dorsale*, Crissal Thrasher<sup>†</sup>.—Rare from desert up to open oak woodland. Four nests, all containing eggs, were located; three were found in late May, one on 9 July.

*Turdus migratorius*, Robin<sup>†</sup>.—Common in riparian and ponderosa pine but uncommon in oak-juniper woodland and spruce-Douglas fir forest. Five nests found in 1965, the earliest with two young on 28 May.

*Hylocichla guttata*, Hermit Thrush.—Common in coniferous forests where moisture is available, extending down into moist shaded canyon bottoms. A female with a fresh brood patch was taken along the South Fork of Cave Creek on 14 May 1967.

*Hylocichla ustulata*, Swainson's Thrush\*.—Uncommon migrant, seen in all years during the last two weeks of April and first two weeks of May. One captured and released at the Station on 14 May 1967.

*Sialia sialis*, Eastern Bluebird\*<sup>†</sup>.—This species was first recorded as a breeding bird in Cave Creek Canyon in 1960 (Phillips, *et al.*, 1964: 131). It has since become a regular breeding species in the oak-juniper woodland and riparian habitat near the Station. Young left one nest on 12 June 1965; newly hatched young were in another on 7 July 1966.

*Sialia mexicana*, Western Bluebird<sup>†</sup>.—Abundant in ponderosa pine forest, where four nests were located. Young fledged in late June and the first two weeks of July.

*Myadestes townsendi*, Townsend's Solitaire.—Migrant (but *cf.* Tanner and Hardy, 1958). Latest sighting was 20 May 1964, near Herb Martyr Dam, by Ligon.

*Poliophtila caerulea*, Blue-gray Gnatcatcher.—Common in oak woodlands.

*Poliophtila melanura*, Black-tailed Gnatcatcher.—Rare in desert scrub.

*Regulus satrapa*, Golden-crowned Kinglet.—Common in spruce-fir forest but not found elsewhere.

*Regulus calendula*, Ruby-crowned Kinglet.—Abundant in spruce-fir forest but also limited to only this community.

*Phainopepla nitens*, Phainopepla\*.—Rare breeder in desert scrub below Portal and also on the west side of the mountain. Records from June, July, and August, 1965.

*Lanius ludovicianus*, Loggerhead Shrike<sup>†</sup>.—Uncommon in most desert scrub areas but locally common. Three nests with four young each were found in 1965. Young left these nests on 12 May, 16 May, and 20 June.

*Vireo buttoni*, Hutton's Vireo<sup>†</sup>.—Uncommon in oak woodlands, more common in riparian situations. Nest found in sycamore on 15 May 1965.

*Vireo bellii*, Bell's Vireo.—Not uncommon in thick mesquite along dry creek beds east of Portal.

*Vireo vicinior*, Gray Vireo.—Of very local distribution. Found by Balda to be uncommon in oak woodland 20 miles southwest of Apache.

*Vireo solitarius*, Solitary Vireo<sup>†</sup>.—Abundant in ponderosa pine forest, and common in oak-juniper woodland and riparian communities. One nest with young found 11 June 1964; male parent taken. Four nests were found in 1965.

*Vireo gilvus*, Warbling Vireo.—Common in aspen stands, which are found at higher elevations. Seen on a few occasions as low as the Station.

*Vermivora virginiae*, Virginia's Warbler.—Uncommon in shrubby areas in both the coniferous forests and in riparian communities.

*Vermivora luciae*, Lucy's Warbler†.—Uncommon from desert through the woodlands, Nest found one and one half miles east of Portal on 9 June 1964.

*Peucedramus taeniatus*, Olive Warbler†.—Surprisingly common in the ponderosa pine forest in 1965; rare in spruce-Douglas fir forest. Two nests located in 1965 and one in 1967.

*Dendroica petechia*, Yellow Warbler.—One seen and heard repeatedly at the Station through the first two weeks of June 1965; no other records.

*Dendroica caerulescens*, Black-throated Blue Warbler\*.—Casual migrant; seen by Balda on 7 May 1965 in riparian habitat.

*Dendroica auduboni*, Audubon's Warbler\*.—Common in riparian and coniferous forests. One nest high in a ponderosa pine was located. Young left around 28 June.

*Dendroica nigrescens*, Black-throated Gray Warbler†.—Abundant in woodland and upper riparian communities. Six nests were found in 1965. Incubation was under way on 17 May in the earliest nest. Recently fledged young were common during the second and third weeks of June.

*Dendroica townsendi*, Townsend's Warbler\*.—Uncommon migrant. Seen through the second week of May.

*Dendroica graciae*, Grace's Warbler†.—Very common in ponderosa pine forest. One nest with female incubating was found on 18 May 1965. A stub-tailed juvenile was taken on 21 June 1964.

*Oporornis tolmiei*, MacGillivray's Warbler\*.—Common migrant. Seen in desert and woodlands into the third week of May. One captured and released at the Station on 15 May 1967.

*Geothlypis trichas*, Yellowthroat\*.—One seen on station grounds on several occasions in May 1965.

*Cardellina rubrifrons*, Red-faced Warbler†.—Uncommon in coniferous forests and higher riparian communities. One nest found on 7 July 1965 in spruce-Douglas fir forest below Flys Peak contained four young.

*Wilsonia pusilla*, Wilson's Warbler.—Common near the Station in mid-May 1967.

*Setophaga picta*, Painted Redstart†.—Abundant in South Fork of Cave Creek Canyon. One nest located on 15 May contained four eggs. Juvenile just out of nest taken on 31 May 1964.

*Passer domesticus*, House Sparrow.—Common at Portal. One nest found in old woodpecker cavity.

*Sturnella magna*, Eastern Meadowlark†.—Common in grasslands below Apache.

*Xanthocephalus xanthocephalus*, Yellow-headed Blackbird\*.—Rare at water tanks in higher desert scrub in July and August.

*Icterus cucullatus*, Hooded Oriole†.—Uncommon in desert and oak woodland. One pair, later collected, was observed building a nest in a large cottonwood one and one-half miles east of Portal on 8 June 1964. Another nest was found in oak woodland in late June 1965.

*Icterus parisorum*, Scott's Oriole†.—Uncommon in desert but common in oak woodland and on dry slopes. Five nests found in 1965. All were placed on the side of a yucca under the green leaves. Nest building was underway by 15 May and young were off the nest by 21 June. An independent juvenile was taken east of Portal on 28 June 1964.

*Icterus bullockii*, Bullock's Oriole\*†.—Uncommon at Station and lower elevations where water is present. One nest was found on station grounds in June 1965. Two males were captured and released at the Station on 14 May 1967.

*Euphagus cyanocephalus*, Brewer's Blackbird\*.—Not uncommon in large flocks at cattle feeder lots until the middle of May.

*Molothrus ater*, Brown-headed Cowbird†.—Uncommon from desert up through oak-juniper woodland. A recently-fledged juvenile that was attended by a female Vermilion Flycatcher was taken 28 June 1964. Three cowbird eggs were found in a Brown Towhee (*Pipilo fuscus*) nest on 11 June 1965.

*Tangarus aeneus*, Bronzed Cowbird\*†.—Uncommon from desert up to lower edge of the oak woodland. Three taken on 26 May 1964. One male was molting. A Hooded Oriole nest contained two oriole eggs and one of this species.

*Piranga ludoviciana*, Western Tanager.—Common in ponderosa pine forest, less common in high riparian. Abundant at hummingbird feeders at the Station in mid-May 1967, apparently as a result of severe food shortage.

*Piranga flava*, Hepatic Tanager†.—Uncommon in pine-oak woodlands, upper riparian, and ponderosa pine forest. One nest was located high in a pine on 8 June 1965. The young fledged about 28 June.

*Piranga rubra*, Summer Tanager\*.—Rare in cottonwoods and high riparian woodlands. One singing male was present at the Station from late May through June 1965.

*Richmondia cardinalis*, Cardinal.—Common in lower riparian.

*Phencticus melanocephalus*, Black-headed Grosbeak†.—Common in oak and pine-oak woodlands and all riparian situations, but uncommon in ponderosa pine forest. Young were seen in mid-August.

*Guiraca caerulea*, Blue Grosbeak<sup>†</sup>. — Uncommon in thick mesquite on the desert east of Portal. One of two adult males collected on 3 June 1964.

*Passerina amoena*, Lazuli Bunting. — Pair seen at the Station during the second week of May 1965.

*Carpodacus cassinii*, Cassin's Finch<sup>\*</sup>. — Rare late spring migrant.

*Carpodacus mexicanus*, House Finch. — Common at low elevations.

*Spinus pinus*, Pine Siskin. — Seen about the Station in May.

*Spinus psaltria*, Lesser Goldfinch. — Uncommon along willow thickets in open riparian habitats.

*Loxia curvirostra*, Red Crossbill. — Sporadic in occurrence in 1965, but flocks of up to 50 birds, including many juveniles, were seen in pine-oak-juniper woodland and ponderosa pine in May and June. Seen in 1964, 1965, and 1967.

*Chlorura chlorura*, Green-tailed Towhee. — Seen through May in open riparian and pine-oak-juniper woodland. One was trapped and released at the Station on 24 May 1967.

*Pipilo erythrophthalmus*, Rufous-sided Towhee. — Uncommon but regular from oak woodland through spruce-Douglas fir forests.

*Pipilo fuscus*, Brown Towhee<sup>†</sup>. — Uncommon in all lower elevation shrubby habitats.

*Calamospiza melanocorys*, Lark Bunting<sup>\*</sup>. — Large flocks were observed in the lowland shrub and oak communities until the second week of May. The last individuals left during the last week of May.

*Passerculus sandwichensis*, Savannah Sparrow<sup>\*</sup>. — Seen commonly in vicinity of cattle watering tanks into the first week of May.

*Ammodramus savannarum*, Grasshopper Sparrow<sup>†</sup>. — Uncommon on desert grassland between Apache and Douglas. Bob-tailed fledglings seen on 26 July 1965. Male with enlarged testes taken on 30 June 1964.

*Ammodramus bairdii*, Baird's Sparrow<sup>\*</sup>. — Winter visitor. Uncommon on desert grassland into early May.

*Chondestes grammacus*, Lark Sparrow<sup>†</sup>. — Uncommon in shrub-grassland areas but common in open oak-woodland where three nests, all on the ground, were located. A nest found on 17 June contained one egg as did another located on 23 June. On 1 July, a pair was observed building a nest which contained three eggs eight days later. These are exceptionally late breeding records, as Brandt (1951) found nests in May and early June.

*Aimophila ruficeps*, Rufous-crowned Sparrow. — Uncommon to common in grassy woodlands.

*Aimophila cassinii*, Cassin's Sparrow<sup>\*</sup>. — Rare, possible breeder on the grasslands south of Apache. Adult male with enlarged testes taken six miles south of Apache on 30 June 1964. Ohmart (1966) recently discovered *A. cassinii* breeding in Arizona (cf. statements of Phillips *et al.*, 1964: 200).

*Amphispiza bilineata*, Black-throated Sparrow<sup>†</sup>. — Abundant in desert scrub vegetation. Nest with three eggs found one and one-half miles east of Portal on 29 May 1964. Four nests found in 1965; the earliest was under construction on 12 May, whereas the latest held two eggs on 14 June.

*Junco oreganus*, Oregon Junco<sup>\*</sup>. — Last seen on 15 May 1965 in pine-oak-juniper woodland and ponderosa pine forest.

*Junco caniceps*, Gray-headed Junco<sup>\*</sup>. — Migrant. Last seen on 17 May 1965, in pine-oak-juniper woodland.

*Junco phaeonotus*, Mexican Junco<sup>†</sup>. — Abundant in coniferous forest. Ten nests found there in 1965. The earliest nest was being built on 17 May; the latest had three eggs on 1 August.

*Spizella passerina*, Chipping Sparrow<sup>†</sup>. — Common in oak woodland and abundant in open pine-oak-juniper woodland. Seven nests were found in the latter community in 1965. The earliest nest contained four eggs on 17 May, while the latest contained young on 12 June.

*Spizella breweri*, Brewer's Sparrow<sup>\*</sup>. — Large flocks were present in low elevation shrubland until the end of May.

*Spizella atrogularis*, Black-chinned Sparrow<sup>\*</sup>. — One seen at lower edge of oak woodland on 5 May 1965.

*Zonotrichia leucophrys*, White-crowned Sparrow. — Common migrant and winter resident at low elevations.

*Melospiza lincolni*, Lincoln's Sparrow<sup>\*</sup>. — One seen at the Station during the first two weeks of May 1965. Two seen at the Station in mid-May 1967.

## DISCUSSION

We recorded 167 species, of which 57 were not seen by Tanner and Hardy (1958). (Nineteen species recorded by us were winter residents or migrants not seen after May.) This is hardly surprising, as we spent much more time in this region, both within a single year and over a span of several years. Species for which we have breeding records,



or for which there is reason to assume breeding, that were unrecorded by Tanner and Hardy include: Peregrine Falcon, Harlequin Quail, Screech, Whiskered, Great-Horned, Pygmy and Elf owls, Wied's Crested Flycatcher, Buff-breasted Flycatcher, Barn Swallow, Scrub Jay, Curved-billed Thrasher, Audubon's Warbler, Bullock's Oriole, Bronzed Cowbird, Blue Grosbeak and Grasshopper Sparrow.

Of special interest are those species whose status apparently has changed during the recent past. The Golden Eagle appears to have decreased since the studies of Brandt (1951) and Tanner and Hardy (1958), whereas the Harlequin Quail apparently has increased. The Prairie Falcon may have become rarer, judging from the comments of Phillips *et al.* (1964: 26), as a result of movement of the Peregrine Falcon into southern Arizona. Our probable breeding record of the Peregrine in Cave Creek Canyon agrees with this; Tanner and Hardy recorded only the Prairie Falcon there. The hummingbirds have either increased in numbers or in conspicuousness or both, largely as a result of the many birders, both inside and outside the station grounds, who put up hummingbird feeders. The Violet-crowned Hummingbird has extended its range northward, as pointed out by Phillips *et al.*, (1964: 65) and is now regular at the Station. Neither Brandt (1951) nor Tanner and Hardy (1958) recorded the Plain Titmouse and Phillips *et al.* (1964: 111) report it only from the northern Chiricahua foothills. We found it using natural cavities throughout the woodlands. The Coppery-tailed Trogon and Buff-breasted Flycatcher apparently occur irregularly in southern Arizona, and we were fortunate to be in the area in a year (1965) when both were present; the trogon was actually almost common.

Tanner and Hardy listed many cavity nesters as uncommon or rare. This was not borne out by the census data of Balda. The density of the Western Bluebird was 20 pairs per 100 acres in ponderosa pine forest. The Red-breasted Nuthatch also was listed as rare in 1956, but 23 pairs per 100 acres were recorded in spruce-fir forest. This suggests a recent increase in the abundance of cavity nesters. Severe drought conditions have killed large numbers of trees in the past few years, indirectly providing numerous new nest sites for these cavity nesters. As mentioned earlier, the Eastern Bluebird (apparently *S. s. fulva*), another cavity nester, has also become established recently in areas near the Station. Balda found the density of this species to be 3 pairs per 100 acres in 1964 and 7 pairs per 100 acres in 1965. Ligon (in press) describes nest sites of this species in Cave Creek Canyon and mentions some factors which possibly serve to limit its increase.

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